

CLAIM AMENDMENTS

Claims 1-33. (Cancelled)

Claim 34. (Currently Amended) A method of culturing a microorganism for the synthesis of docosahexaenoic acid (DHA) by the microorganism, comprising culturing a microorganism capable of DHA production ~~selected from the group consisting of *Cryptocodinium cohnii* and genetically modified variants thereof~~ with a compound selected from the group ~~consisting of carboxylic acids and carboxylate ions~~ acetic acid and an acetate ion, the microorganism using the compound as a carbon source and synthesizing DHA, ~~docosahexaenoic acid~~ wherein said culturing method does not include a stationary phase.

Claim 35. (Cancelled).

Claim 36. (Previously Presented) The method according to claim 34, wherein the compound is the main carbon source for the microorganism during the culture of the microorganism.

Claim 37. (Currently Amended) The method according to claim 34, wherein the microorganism is cultured in a medium, said use of the compound as a carbon source by the microorganism causing an increase in pH of the medium, and wherein the method further includes, where the compound is ~~a carboxylic~~ acetic acid, addition to the medium of said ~~carboxylic~~ acetic acid, or where the compound is ~~a carboxylate~~ an acetate ion, addition to the medium of ~~a carboxylic~~ acetic acid that ionizes to form said ~~carboxylate~~ acetate ion, in response to the increase in pH so as to decrease the pH of the medium.

Claim 38. (Previously Presented) The method according to claim 37, wherein said addition maintains the pH substantially at a predetermined value.

Claim 39. (Previously Presented) The method according to claim 38, wherein the predetermined value is pH 6.5.

Claim 40. (Previously Presented) The method according to claim 37, wherein the pH of the medium is monitored by means that produces a signal that is used to control said addition to the medium.

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Claim 41. (Previously Presented) The method according to claim 40, wherein the signal is used to control addition of one or more of a nitrogen source, a phosphorus source, an amino acid, a vitamin, a salt or another growth factor during the culture of the microorganism.

Claim 42. (Currently Amended) The method according to claim 37, wherein said ~~carboxylic~~ acetic acid or said ~~carboxylic~~ acetic acid that ionizes is added to the medium in a mixture comprising a further compound.

Claim 43. (Previously Presented) The method according to claim 42, wherein the further compound is an organic acid.

Claim 44. (Previously Presented) The method according to claim 42, wherein the further compound is a lipid.

Claim 45. (Previously Presented) The method according to claim 42, wherein the mixture is a waste product from an industrial process.

Claim 46. (Previously Presented) The method according to claim 42, wherein the further compound is a nitrogen source, a phosphorus source, an amino acid, a vitamin, a growth factor, a salt or a lipid.

Claim 47. (Currently Amended) The method according to claim 34, wherein prior to ~~said culture with said compound~~ culturing with acetic acid or an acetate ion, the microorganism is grown with ~~said compound~~ acetic acid or an acetate ion.

Claim 48. (Previously Presented) The method according to claim 34, wherein the microorganism is cultured with an organic nitrogen source.

Claim 49. (Previously Presented) The method according to claim 48, wherein the organic nitrogen source is yeast extract and the initial concentration of the yeast extract is greater than 7.5 g/l.

Claim 50. (Previously Presented) The method according to claim 49, wherein the initial concentration of yeast extract is 10 g/l.

Claim 51. (Currently Amended) The method according to claim 34, wherein the microorganism is cultured with ~~a salt~~ salts or ~~an osmoticant~~ osmoticants.

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Claims 52-57. (Cancelled)

Claim 58. (Previously Presented) An oil comprising docosahexaenoic acid prepared from a microorganism cultured in accordance with claim 34.

Claim 59. (Previously Presented) An at least partially purified preparation of docosahexaenoic acid prepared from a microorganism cultured in accordance with claim 34.

Claims 60-64. (Cancelled)

Claim 65. (Previously Presented) A microorganism cultured in accordance with claim 34.

Claim 66. (Currently Amended) ~~A~~ The microorganism cultured in accordance with claim 60 according to claim 65 for use as a food or food supplement.

Claims 67-73. (Cancelled)

Claim 74. (New) The method of claim 34, wherein said culturing method is performed as a continuous or semi-continuous process.

Claim 75. (New) A method according to claim 34, wherein the method further comprises extracting oil including docosahexaenoic acid from the microorganism.

Claim 76. (New) A method according to claim 75 further comprising purifying the oil to increase the docosahexaenoic acid content of the oil.

Claim 77. (New) A method according to claim 34, wherein the method further comprises the purification or partial purification of docosahexaenoic acid from the microorganism.

Claim 78. (New) A method according to claim 34 wherein the initial concentration of the acetic acid or acetate ion in the culture is between 4 and 16 g/l.

Claim 79. (New) A method according to claim 78, wherein the initial concentration of the acetic acid or acetate ion is about 8 g/l.

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Claim 80. (New) A method according to claim 34, wherein the microorganism is *Crypthecodinium cohnii* or a genetically modified variant thereof.

Claim 81. (New) A method according to claim 34, wherein the percent docosahexaenoic acid in the total extractable lipid is at least 29.3.

Claim 82. (New) A method according to claim 34, wherein during the culturing process the total concentration of docosahexaenoic in the growth medium rises to at least 0.9 g/l.

Claim 83. (New) A food or food supplement comprising docosahexaenoic acid produced in accordance with claim 34.

Claim 84. (New) A food or food supplement comprising the microorganism cultured in accordance with claim 34.

Claim 85. (New) A fish food or fish food supplement comprising the microorganism cultured in accordance with claim 34.

Claim 86. (New) A fish food or fish food supplement comprising docosahexaenoic acid produced in accordance with claim 34.